

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number
WO 2005/039841 A3

(51) International Patent Classification⁷: C08L 91/06,
C09D 191/06, A01N 25/00

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(21) International Application Number:
PCT/US2004/016039

(22) International Filing Date: 20 May 2004 (20.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/475,922 5 June 2003 (05.06.2003) US
60/516,937 3 November 2003 (03.11.2003) US

(71) Applicant (for all designated States except US): BORDEN CHEMICAL, INC. [US/US]; 180 East Broad Street, Columbus, OH 43215 (US).

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

- of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
30 June 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A3

WO 2005/039841 A3

(54) Title: EMULSIONS FOR LIGNOCELLULOUS PRODUCTS, METHODS OF THEIR MANUFACTURE, IMPROVED LIGNOCELLULOUS PRODUCTS AND METHODS FOR THEIR MANUFACTURE

(57) Abstract: Emulsions are provided which are useful in imparting water-resistance to lignocellulosic products. In one embodiment, the emulsions contain a nonsaponifiable wax, a saponified wax, an alkyl phenol component, a dispersant/surfactant such as a salt of polynaphthalenesulfonic acid, and a carboxymethylcellulose. Such emulsions may be added to hot, even boiling, water without the emulsion separating or curdling. Various embodiments are stable for extended periods of time when stored at room temperature, do not require the addition of a preservative biocide to avoid contributing to biodegradation in a lignocellulosic product. The emulsions are pourable liquids at room temperature. Optionally, the emulsions may be added to lignocellulosic products with a preservative to inhibit the preservative from leaching out.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/16039

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C08L 91/06; C09D 191/06; A01N 25/00
 US CL : 106/2, 18.29, 271, 272; 424/405, 638; 426/298

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 106/2, 18.29, 271, 272; 424/405, 638; 426/298

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3,416,933 A (NICHOLSON et al.) 17 December 1968.	1-18, 33-40
A	US 4,055,433 A (MORONES) 25 October 1977.	1-18, 33-40.
A	US 4,497,919 A (VARGA et al.) 05 February 1985.	1-18, 33-40
A	US 4,681,910 A (CROCKATT et al.) 21 July 1987.	1-18, 33-40
A	US 6,165,261 A (WANTLING) 26 December 2000.	1-18, 33-40.
A	US 6,428,902 B1 (AMUNDSON et al.) 06 August 2002.	1-40
A	US 6,663,707 B2 (WANTLING et al.) 16 December 2003.	1-18, 33-40
A	US 2003/0084825 A1 (WANTLING et al.) 08 May 2003.	1-18, 33-40
E,&	WO 2004/108625 A1 (BORDEN CHEMICAL INC.) 16 December 2004.	1-18, 33-40

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

18 April 2005 (18.04.2005)

Date of mailing of the international search report

05 MAY 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450

Authorized officer

Anthony J. Green

Telephone No. 571-272-1700

Faxsimile No. (703) 305-3230